

EXTRADURAL BUPIVACAINE AS AN ANALGESIC IN NORMAL LABOUR

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SUMMARY

The efficacy of epidurally administer 0.5% Bupivacaine as an analgesic in active labour was studied both primi and multigr aidaae. It was found to be a safe and effective analgesic without causing any adverse side effects on mother and foetus. There was no significant change in the intensity, frequency and duration of uterine contractions after it's administration. Total duration of analgesia in usual labour was 181.54% + 35.5 min. Pain relief was excellent in 18% and good in 48% cases. The second stage of labour was significantly prolonged but the third stage of labour was shortened. The Apgar score of the baby was not affected.

Earlier the labour was considered a divine punishment and people were prosecuted if they attempted relief of pain during labour. It was only in 18th century that Psychological, Pharmacological and anatomical aspects of pain relief were understood. Psychological approach for analgesia included the mental preparation of patient for foreseeable labour pain and building up her confidence in the doctor. The Pharmacological approach included the use of various depressant drugs like barbiturates, narcotics and various depressant drugs like barbiturates, narcotics and various anaesthetic agents. With the understanding of the merchanism and pathways of uterine pain, efforts were made to block the pain stimuli reaching the spinal cord.

Epidural analgesis is a realiable single puncture technique of conduction analgesia which provides profound relaxation and pain relief without producing any adverse cardiovascular or respiratory effects and post anaesthetic bladder and rectal dysfunctions. The present study is an attempt to evaluate and exploit the analgesic efficiency of epidurally administered 0.5% Bupivacaine in both primi and multigravid women.

MATERIAL AND METHODS

The present study was carried out in 100 pregnant women out of which fifty were in study group and fifty in control group.

All the patients were carefully interrogated and clinically examined to rule out the presence of any condition contraindicating the use of extradural medication viz., bleeding disorder, spine deformity, shock and any skin infection at the puncture site. 10-15 ml of 0.5% Bupivacaine was injected in extradural space between L2 & L3 vertebra by a 16 gauge Tuohy's needle under all aseptic precautions. Both mother and foetus were carefully monitored for progress of labour and foetal heart sounds or any adverse side effects throughout labour.

OBSERVATIONS & DISCUSSION

Table I shows time taken for onset of analgesic action and total duration of analgesia with 0.5% Bupivacaine in normal vaginal delivery.

TABLE I (A + B)

Analgesic Action of Bupivacaine In Normal Vaginal Delivery

A. Time for onset of action			B. Duration of action		
Time (in Minutes) taken for onset of action	Patients		Total duration of pain relief in min.	Patients	
	No.	%		No.	%
1 - 5 min.	8	16	below 60	-	-
6 - 10 min.	29	58	61 - 90	-	-
11 - 15 min.	12	24	91 - 120	5	10
16 - 20 min.	1	2	121 - 150	18	36
Total	50 n=100		151 - 180	13	26
Time in minutes mean + S.D.			181 - 210	9	18
= 8.95 + 2.76 min.			211 - 240	2	4
			241 - 270	2	4
			271 - 300	1	2

n=50 n=100

Time in minute Mean + S:D. = 181.54 + 35.50

In the present study, the mean duration of time taken for onset of 0.5% Bupivacaine action was 8.95 minutes in cases of normal labour (Table I). Our observations are in consonance with those of Watt et al (1968), Ekholm & Widmen (1966) and Singh et al (1969), who observed the mean duration of action to be 8.6 min, 8.1 min and 7.9 min respectively.

Mean of the total duration of analgesic action of Bupivacaine was 181.54 min. The shortest and longest duration of analgesia with Bupivacaine was 101 min and 271 min respectively.

Pain relief score was studied. It was considered excellent when more than 75%, good when 50-75%, fair when 24-50% and poor when less than 25% pain of the patient was relieved. In the present study it was found to be excellent in 18%, good in 48%, fair in 26% and poor in 8% patients. Our observations of this score favourably compared with those of Crawford (1972) and Chauhan et al (1981).

TABLE II
Effect of Epidurally Administered 0.5% Bupivacaine
On Duration of Labour

Parity	Epidural group	Control group (hrs)	t	p
1st Stage (Hours)				
Primi	7.083+1.22	6.625+1.522	1.15	> 0.05 insignificant
Multi	5.2+1.16	5.44+0.46	1.16	> 0.05 insignificant
2nd Stage (Mins.)	28.68+5.38	25.33+7.46	2.53	< 0.05 significant
3rd Stage (Mins.)	5.174+2.14	7.306+2.31	3.18	< 0.01 significant

It was observed that there was no interference with the tone, force, duration and frequency of uterine contractions by extradural administration of 0.5% Bupivacaine in majority of the cases. Studd et al (1980) reported a duration of 8.35 hrs. & 5.23 hrs. in primi and multigravid women respectively which is in agreement with the results of present study (Table III). Although duration of first stage of labour was found to be more in

ence was found to be statistically significant. The results of present study correspond with the results of (Studd et al (1980), Kulkarni et al (1982) and this prolongation of 2nd stage of labour may be attributed to loss of perineal sensation, relaxation of pelvic floor muscles, leading to delay in internal rotation of head.

The mean duration of 3rd stage of labour in epidural group was considerably short-

TABLE III
Effect Of Bupivacaine On Mode Of Delivery
In Primigravida And Multigravida

Mode of Delivery	PRIMIGRAVIDA			MULTIGRAVIDA			
	Epidural group	Control group	X2 p	Epidural group	Control group	X2 P	P
Spontaneous	16 (64%)	19 (76%)	10.36<0.05 significant	23 (92%)	25 (100%)	10.66<0.05 significant	
Forceps	8 (32%)	5 (20%)	0.72>0.05 insignificant	2 (8%)	0	4.4>0.05 insignificant	
L.S.C.S.	*1 (4%)	1 (4%)	5.03<0.05 significant	0	0	-	
Total	25	25		25	25		

epidural group as compared to control cases, but this difference was statistically insignificant (t 1.5, p). Mean duration of 2nd stage of labour was found to be 28.68 min. in epidural cases and 25.33 in control cases. This differ-

ence being 5.17 min, as compared to 7.3 min. in control group. This was found to be statistically significant (t = 3.18, p < 0.01).

*L.S.C.S. was done for non progress of labour due to cervical dystocia.

TABLE IV
Effect of 0.5% Bupivacaine on the Foetal Heart Rate And Apgar Score

Foetal heart rate	Epidural group (beats/min)	Control group (beats/min)		
Increase	6.78+0.466	6.135+0.747		
Decrease	6.55+0.496	8.125+2.98		
Apgar Score	Epidural group	Control group	t	p
	7.90+1.34	8.28+2.34	1.00	0.05
				Insignificant

Forceps delivery rate in the study group specially in primi (32%) was more as compared to control (20%). Singh et al (1969) has also reported higher forceps delivery rate (24%) in primigravida

In 24% patients (12 out of 50) no change was found in foetal heart rate. Mean increase in FHR was found to be 6.78 min.

Out of 50 cases of study group 40% cases developed mild to moderate hypotension irrespective of their parity which was immediately corrected by I/V fluids. Moore et al (1970), Lund et al (1970) have also reported 40% incidence of hypotension. 12% cases complained of backache after delivery. Crawford (1985) Moir and Davidson (1972) Moore et al (1978) also noted lumbosacral pain in about 14% to 40% of women. 8% patients had nausea and vomiting. The results are comparable with those of Moore and Bridenbaugh (1974). 8% patients developed shivering and tremors. In only one (2%) spinal tap occurred. This is comparable with the results of Friedman et al (1960). Bradycardia was observed in 8% cases which was treated with atropine 0.65 mg injected I/V slowly.

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